

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

LISTING OF CLAIMS:

Claim 1. (Currently amended) An isolated [[A]] modified mevalonate kinase which exhibits a sensitivity to feedback inhibition which is reduced in comparison to the corresponding non-modified mevalonate kinase wherein

the modified mevalonate kinase contains a mutation when compared with the amino acid sequence of the corresponding non-modified mevalonate kinase wherein the mutation is at the amino acid position corresponding to amino acid position 17 of the sequence as shown in SEQ ID NO:1, and

wherein the modified mevalonate kinase is at least 95% homologous to SEQ ID NO:1

~~(i) — the amino acid sequence of the modified mevalonate kinase contains at least one mutation when compared with the amino acid sequence of the corresponding non-modified mevalonate kinase and~~

~~(ii) — the at least one mutation is at one or more amino acid positions selected from the group consisting of amino acid positions corresponding to positions 17, 47, 93, 94, 132, 167, 169, 204, and 266 of the amino acid sequence of *Paracoccus zeaxanthinifaciens* mevalonate kinase as shown in SEQ ID NO:1.~~

Claim 2. (Currently amended) The [[A]] modified mevalonate kinase according to claim 1 wherein said feedback inhibition is feedback inhibition by farnesyl diphosphate or geranylgeranyl diphosphate.

Claim 3. (Currently amended) The [[A]] modified mevalonate kinase according to claim 1 wherein the modified mevalonate kinase exhibits a feedback resistance of at least 10% in comparison to the corresponding non-modified mevalonate kinase.

Claim 4. (Currently amended) The [[A]] modified mevalonate kinase according to claim 1 wherein the mutation is an amino acid substitution.

Claim 5. (Withdrawn) A modified mevalonate kinase according to claim 1 wherein the modified mevalonate kinase contains two amino acid substitutions when compared with the amino acid sequence of the corresponding non-modified mevalonate kinase.

Claim 6. (Withdrawn) A modified mevalonate kinase according to claim 1 wherein the modified mevalonate kinase contains three amino acid substitutions when compared with the amino acid sequence of the corresponding non-modified mevalonate kinase.

Claim 7. (Withdrawn) A modified mevalonate kinase according to claim 1 wherein the modified mevalonate kinase contains four amino acid substitutions when compared with the amino acid sequence of the corresponding non-modified mevalonate kinase.

Claim 8. (Cancelled).

Claim 9. (Currently amended) The [[A]] modified mevalonate kinase according to claim 4 [[8]] wherein the substitution at the amino acid position corresponding to position 17 of the sequence as shown in SEQ ID NO:1 consists of the replacement of isoleucine with threonine.

Claim 10. (Cancelled).

Claim 11. (Currently amended) A polynucleotide comprising a nucleotide sequence which codes for the ~~[[a]]~~ modified mevalonate kinase according to claim 1.

Claim 12. (Currently amended) The ~~[[A]]~~ polynucleotide according to claim 11 wherein the nucleotide sequence which codes for the ~~[[a]]~~ modified mevalonate kinase according to claim 1 is selected from the group consisting of the nucleotide sequences SEQ ID NOs: 32 and 33.

Claim 13. (Currently amended) A vector or plasmid comprising the ~~[[a]]~~ polynucleotide according to claim 11.

Claim 14. (Currently amended) The ~~[[A]]~~ vector or plasmid according to claim 13 further comprising at least one marker gene.

Claim 15. (Previously presented) A host cell comprising the vector or plasmid according to claim 13.

Claim 16. (Currently amended) The ~~[[A]]~~ host cell according to claim 15 which is selected from the group consisting of an ~~*E. coli*, or *Paracoccus zeaxanthinifaciens*, or *Rhodobacter*, and or *Saccharomyces cerevisiae* cell.~~

Claim 17. (Withdrawn) A method for producing an isoprenoid compound comprising:

- (a) culturing the host cell according to claim 15 in a suitable medium; and
- (b) optionally separating the isoprenoid compound from the medium.

Claim 18. (Withdrawn) A method according to claim 17 wherein the isoprenoid compound is coenzyme Q10.

Claim 19. (Currently amended) A method for producing the ~~[[a]]~~ modified mevalonate kinase according to claim 1 comprising:

(a) culturing in a suitable medium a population of host cells, which comprise a vector or plasmid that comprises a polynucleotide that encodes the ~~[[a]]~~ modified mevalonate kinase wherein

the modified mevalonate kinase contains a mutation when compared with the amino acid sequence of the corresponding non-modified mevalonate kinase wherein the mutation is at the amino acid position corresponding to amino acid position 17 of the sequence as shown in SEQ ID NO:1 and the modified mevalonate kinase is at least 95% homologous to SEQ ID NO:1

~~(i) — the amino acid sequence of the modified mevalonate kinase contains at least one mutation when compared with the amino acid sequence of the corresponding non-modified mevalonate kinase and~~

~~(ii) — the at least one mutation is at one or more amino acid positions selected from the group consisting of amino acid positions corresponding to positions 17, 47, 93, 94, 132, 167, 169, 204, and 266 of the amino acid sequence of *Paracoccus zeaxanthinifaciens* mevalonate kinase as shown in SEQ ID NO:1; and~~

(b) optionally recovering the modified mevalonate kinase from the cells or from the medium.

Claim 20. (Currently amended) A method for the preparation of a mevalonate kinase having reduced sensitivity to feedback inhibition, comprising the following steps:

(a) providing a polynucleotide encoding a first mevalonate kinase which exhibits sensitivity to feedback inhibition;

(b) introducing a mutation ~~one or more mutations~~ into the polynucleotide sequence such that the mutated polynucleotide sequence encodes a second mevalonate kinase which contains a mutation when compared to the first mevalonate kinase wherein the mutation is at the amino acid position corresponding to amino acid position 17 of the sequence as shown in SEQ ID NO:1, and

wherein the second mevalonate kinase is at least 95% homologous to SEQ ID NO:1

~~at least one amino acid mutation when compared to the first mevalonate kinase wherein the at least one amino acid mutation is at one or more amino acid positions selected from the group consisting of amino acid positions corresponding to positions 17, 47, 93, 94, 132, 167, 169, 204, and 266 of the amino acid sequence as shown in SEQ ID NO:1;~~

(c) optionally inserting the mutated polynucleotide in a vector or plasmid;

(d) introducing the mutated polynucleotide or the vector or plasmid into a suitable host cell; and

(e) culturing the host cell under conditions that allow expression of the second ~~modified~~ mevalonate kinase.

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Claims 21-24 (Cancelled).